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A metal picket fence

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ABSTRACT

The present invention relates generally to a metal picket fence (10) comprising a pair of upright posts (12A and 12B), an upper and a lower rail (14 and 16), and a series of hollow metal pickets such as (18). The hollow metal picket (18) is cold roll formed into a closed section of a seamless construction. The picket (18) is shaped oblong in cross-section with opposing longitudinal edge portions designated as (20A and 20B) overlapping one another. The top and bottom rails (14 and 16) are each cold roll formed from a relatively light gauge steel strip. The top and bottom rails (14 and 16) are of a seamless construction and are in the form of a channel section of substantially identical cross-sectional shape. Each of the channel sections include a web (24) and a pair of opposing flanges (26A and 26B). The pair of opposing flanges (26A and 26B) include opposing edge portions (32A and 32B) which are directed toward one another with a longitudinally extending slot (34) defined therebetween. The slot (34) of both the upper and lower rails (14 and 16) corporates a series of longitudinally oriented and spaced apart oblong-shaped openings such as (36) each being adapted to receive an end of a picket such as (18).

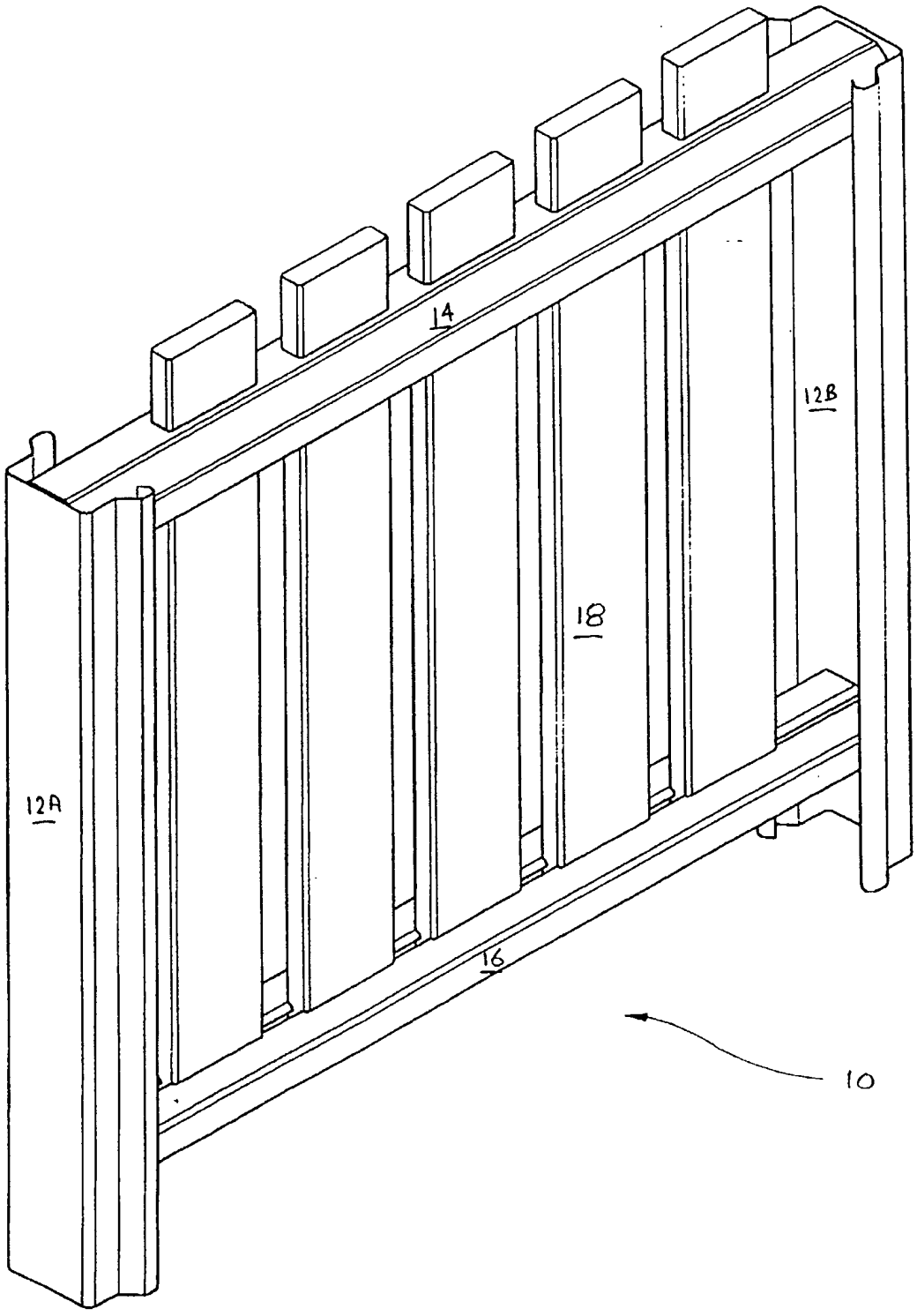

FIG. 1

AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION

STANDARD PATENT

Applicant(s):

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A.C.N. 000 011 058

Invention Title:

A METAL PICKET FENCE

The following statement is a full description of this invention, including the best method of performing it known to me/us:

A METAL PICKET FENCE

FIELD OF THE INVENTION

The present invention relates generally to a picket fence and relates particularly, though not exclusively, to a hollow metal picket and rail and their methods of fabrication.

SUMMARY OF THE INVENTION

According to one aspect of the present invention there is provided a hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein opposing edge portions of the steel strip overlap one another at a corner of the picket.

According to another aspect of the invention there is provided a method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein opposing edge portions of the steel strip overlap one another at a corner of the picket.

According to a further aspect of the invention there is provided a hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile.

According to yet another aspect of the invention there is provided a method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat

within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile.

According to yet a further aspect of the invention there is provided a hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the hollow metal picket.

According to still another aspect of the invention there is provided a method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the hollow metal picket.

According to still a further aspect of the invention there is provided a picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets each roll formed into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the

hollow metal picket, said pickets extending vertically alongside one another between the upper and the lower rails.

According to an additional aspect of the invention there is provided a hollow metal rail for a picket fence, said rail being roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of longitudinally spaced apart enlarged oblong-shaped openings each being adapted to receive an end of a picket.

According to yet an additional aspect of the invention there is provided a method of fabricating a hollow metal rail for a picket fence, said method comprising roll forming steel strip so as to form a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of longitudinally spaced apart enlarged oblong-shaped openings each being adapted to receive an end of a picket.

According to still an additional aspect of the invention there is provided a hollow metal rail for a picket fence, said rail being roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

According to a supplementary aspect of the invention there is provided a method of fabricating a hollow metal rail for a picket fence, said method comprising roll forming steel strip so as to form a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

According to another supplementary aspect of the invention there is provided a picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets extending vertically alongside one another between the upper and the lower rails which are each roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of longitudinally spaced apart enlarged openings each being adapted to receive an end of a picket.

According to a further supplementary aspect of the invention there is provided a picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets extending vertically alongside one another between the upper and the lower rails which are each roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of

the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

Preferably the hollow metal picket or the rail is cold roll formed from relatively thin gauge steel strip. More preferably the steel strip is less than about 1.0 mm in gauge.

Preferably the hollow metal picket is shaped oblong in cross-section.

Preferably the web of the hollow metal rail includes a central panel formed continuous with a pair of opposing side panels extending at an acute angle relative to a nominal plane of the central panel.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to achieve a better understanding of the nature of the present invention a preferred embodiment of a picket fence together with a hollow metal picket and rail will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a metal picket fence;

Figure 2 is a perspective view of another metal picket fence;

Figure 3 shows various views of a picket taken from the picket fences of Figures 1 and 2; and

Figure 4 depicts various views of a top and bottom rail taken from the picket fence of Figure 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in Figures 1 and 2 there is a metal picket fence 10 comprising a pair of upright posts 12A and 12B, an upper

and a lower rail 14 and 16, and a series of hollow metal pickets such as 18. The upper and lower rails 14 and 16 are located horizontally between the upright posts 12A and 12B which are spaced a predetermined distance apart. The hollow metal pickets such as 18 extend vertically alongside one another between the upper and the lower rails 14 and 16. In both embodiments of the picket fence 10 the pickets 18 rest upon the lower rail 16. In the picket fence 10 of Figure 1 the pickets 18 extend through the top rail 14 whereas in the picket fence 10 of Figure 2 the pickets 18 abut the upper rail 14.

Figure 3 illustrates in plan and elevational view together with an enlarged detail view one of the pickets such as 18 of the picket fence 10 of Figures 1 or 2. In this embodiment the picket 18 is cold roll formed from relatively light gauge steel strip such as that commercially available in Australia under the specification of 0.35 G550 AZ150 COLORBOND® CORSTRIP®. The picket 18 is shaped oblong in cross-section with opposing longitudinal edge portions designated as 20A and 20B of the steel strip overlapping one another. The picket 18 is roll formed so that the edge portions 20A and 20B overlap one another at a corner such as 22 of the picket 18. The overlapping edge portions 20A and 20B thus mutually overlap to provide a hollow metal picket 18 which is relatively stable dimensionally. Further, one of the edge portions 20A is cranked so that the opposite overlapping edge portion 20B seats within the cranked portion so as to provide a picket with a relatively smooth external profile.

The hollow metal picket 18 has the appearance of a seamless construction in that the seam is not visually evident. Additionally the picket 18 is then constructed without requiring any fixing means such as a weld or fastener to retain its cross sectional profile. Rather, the hollow metal picket 18 of this embodiment relies upon the

overlapping or interlocking of opposing edge portions of the steel strip from which it is fabricated to maintain its sectional profile.

Figure 4 illustrates plan and sectional views of the top and bottom rail 14 and 16 of the picket fences 10 of Figures 1 and 2 together with an exploded view of two of the pickets 18 in conjunction with the top and bottom rails 14 and 16. In this embodiment the top and bottom rails 14 and 16 are each cold roll formed from a relatively light gauge steel strip such as that commercially available in Australia as 0.80 B.M.T® G550 Z275 COLORBOND® or 0.80 B.M.T.® G550 Z450 ZINC HI-TEN®. The top and bottom rails 14 and 16 are in the form of a channel section of substantially identical cross-sectional shape. Each of the channel sections of the top and bottom rails 14 and 16 include a web 24 and a pair of opposing flanges 26A and 26B extending from opposing longitudinal edges of the web 24. The web 24 consists of a central panel 28 formed continuous with a pair of opposing side panels 30A and 30B which extend at an acute angle relative to a nominal plane of the central panel 28. The pair of opposing flanges 26A and 26B include opposing edge portions 32A and 32B which are directed toward one another with a longitudinally extending slot 34 defined therebetween. The opposing edge portions 32A and 32B also include a lip return 35 turned inwardly of the rail 14 or 16. The top and bottom rails 14 and 16 of this example are thus generally hexagonal in cross-sectional shape.

The slot 34 of both the upper and lower rails 14 and 16 incorporates a series of longitudinally orientated and spaced apart oblong-shaped openings such as 36. Each of the openings 36 is adapted to receive an end of a picket such as 18. The oblong-shaped openings 36 of this example are thus shaped complementary to the cross-sectional shape of the picket 18. Accordingly a lower end of one of the

pickets 18 is slid through the opening 36 until it abuts the central panel 28 of the lower rail 16. In one embodiment the lip return such as 35 defines part of the perimeter of the picket opening 36. The opening is slightly narrower than the picket 18 and the lip return 35 both assists with insertion of the picket 18 into the rail such as 16 and clamps the picket 18 to hold it in place.

The upper rail 14 of the picket fence of Figure 1 includes a corresponding oblong-shaped opening 38 through which an upper end of the picket 18 is slidably received. In this example the pickets 18 of the picket fence 10 may be provided with an end cap (not shown) in the form of "Fleur de Lyse" or other desired shapes. Generally these end caps extend into the upper end of the hollow picket 18. On the other hand, the upper rail 14 of the picket fence of Figure 2 is identical in construction to the lower rail 16 insofar as there is no corresponding opening in the web 28 of the upper rail 14 through which the picket 18 can pass. Rather, the upper end of the picket 18 abuts an inner surface of the web 24.

The picket fences 10 of Figures 1 and 2 of these embodiments of the invention can be erected without the need for fasteners or other fixing means. Accordingly the picket fence 10 is relatively quick and simple to erect requiring minimal trade skills. The pickets such as 18 are also visually attractive and dimensionally stable as a result of the particular configuration of the overlapping edge portions. The bottom rail 16 may be provided with drain outlets 40 to facilitate the drainage or egress of rainwater. In the illuminated example the drain outlets 40 are positioned respectively at or near ends of the rail 16.

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. All

such variations and modifications are to be considered within the scope of the present invention the nature of which is to be determined from the foregoing description.

In the preceding summary of the invention, except where the context requires otherwise due to express language or necessary implication, the word "comprising" is used in the sense of "including", that is the features specified may be associated with further features in various embodiments of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein opposing edge portions of the steel strip overlap one another at a corner of the picket.

2. A hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile.

3. A hollow metal picket for a picket fence, said picket being roll formed from steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the hollow metal picket.

4. A hollow metal picket as defined in any one of the preceding claims wherein the hollow metal picket is cold roll formed from relatively thin gauge steel strip.

5. A picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets each roll formed into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within

the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the hollow metal picket, said pickets extending vertically alongside one another between the upper and the lower rails.

6. A method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein opposing edge portions of the steel strip overlap one another at a corner of the picket.

7. A method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile.

8. A method of fabricating a hollow metal picket for a picket fence, said method comprising roll forming steel strip into a closed section wherein one of opposing edge portions of said strip is formed as a cranked edge portion so that the other of said opposing edge portions can seat within the cranked edge portion to provide the hollow metal picket with a relatively smooth external profile, the opposing edge portions also being overlapped at a corner of the hollow metal picket.

9. A hollow metal rail for a picket fence, said rail being roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of

longitudinally spaced apart enlarged openings each being adapted to receive an end of a picket.

10. A hollow metal rail for a picket fence, said rail being roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

11. A hollow metal rail as defined in claim 9 or 10 wherein the web of the hollow metal rail includes a central panel formed continuous with a pair of opposing side panels extending at an acute angle relative to a nominal plane of the central panel.

12. A method of fabricating a hollow metal rail for a picket fence, said method comprising roll forming steel strip so as to form a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of longitudinally spaced apart enlarged oblong-shaped openings each being adapted to receive an end of a picket.

13. A method of fabricating a hollow metal rail for a picket fence, said method comprising roll forming steel strip so as to form a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of

opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

14. A picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets extending vertically alongside one another between the upper and the lower rails which are each roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot having a series of longitudinally spaced apart enlarged openings each being adapted to receive an end of a picket.

15. A picket fence comprising:

a plurality of upright posts;

an upper rail and a lower rail located horizontally between adjacent of said posts; and

a series of hollow metal pickets extending vertically alongside one another between the upper and the lower rails which are each roll formed as a channel section including a web, and a pair of opposing flanges extending from opposing longitudinal edges of the web, opposing edge portions of the flanges being directed toward one another so as to define a longitudinally extending slot being adapted to receive an end of a picket, opposing edge portions of opposing flanges of the rail including a lip portion which is turned inwardly of the rail.

16. A hollow metal picket substantially as herein described with reference to the accompanying drawings.

17. A hollow metal rail substantially as herein described with reference to the accompanying drawings.

18. A picket fence substantially as herein described with reference to the accompanying drawings.

19. A method of fabricating a hollow metal picket, said method being substantially as herein described.

20. A method of fabricating a hollow metal rail, said method being substantially as herein described.

Dated this 3rd day of May 2000

BHP STEEL (JLA) PTY LTD

By their Patent Attorneys
GRIFFITH HACK

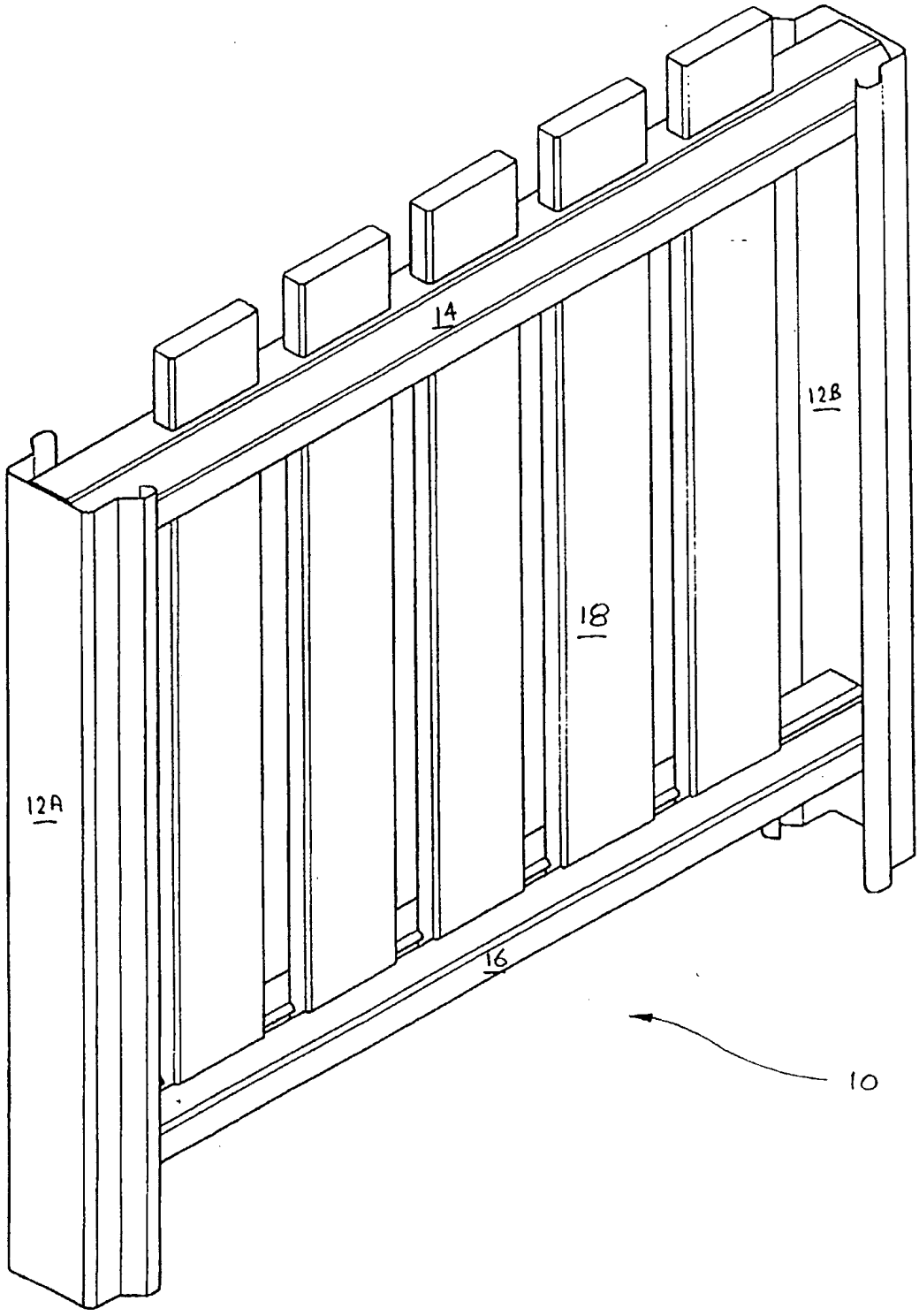

FIG. 1

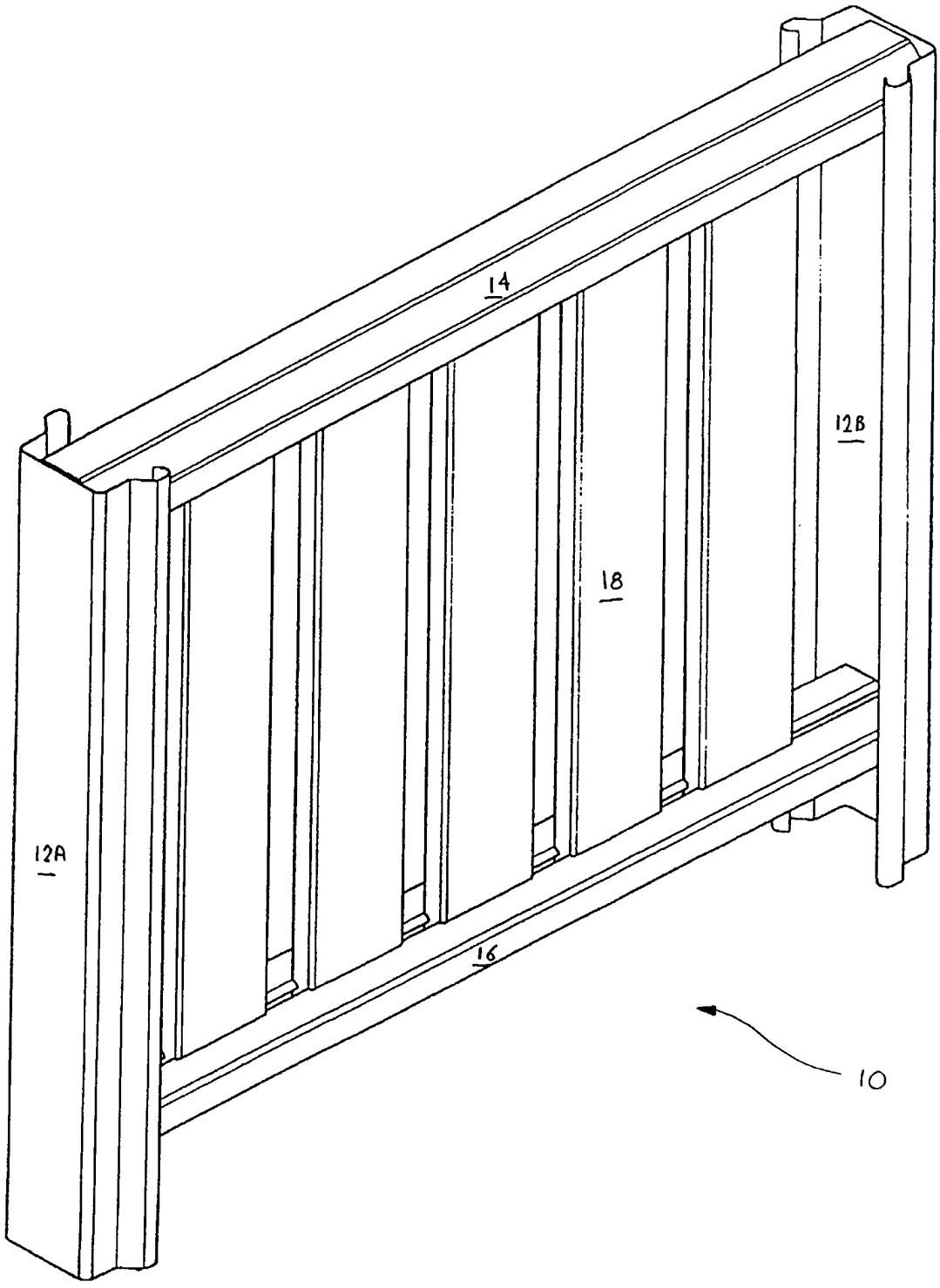

FIG. 2

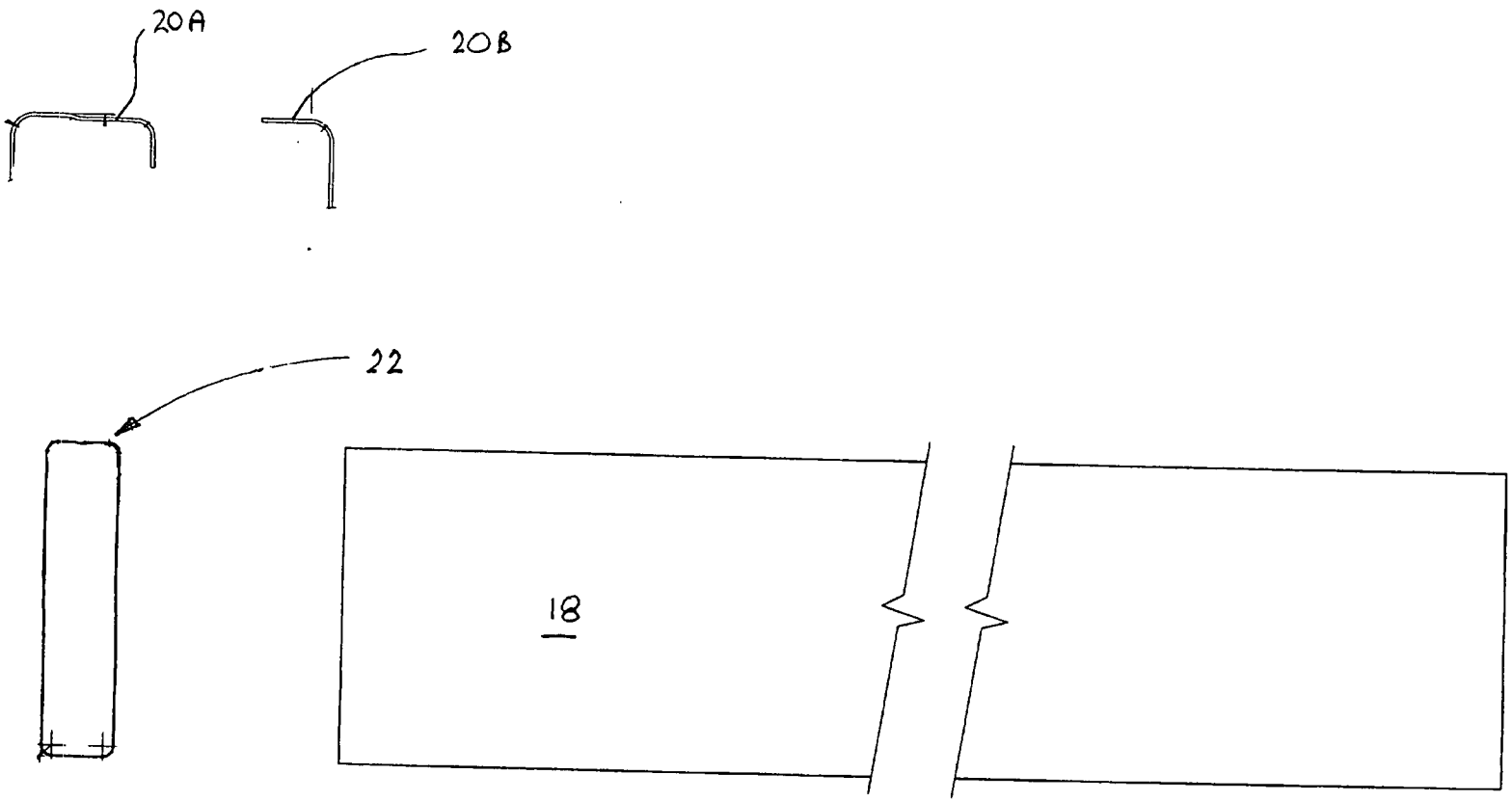

FIG. 3

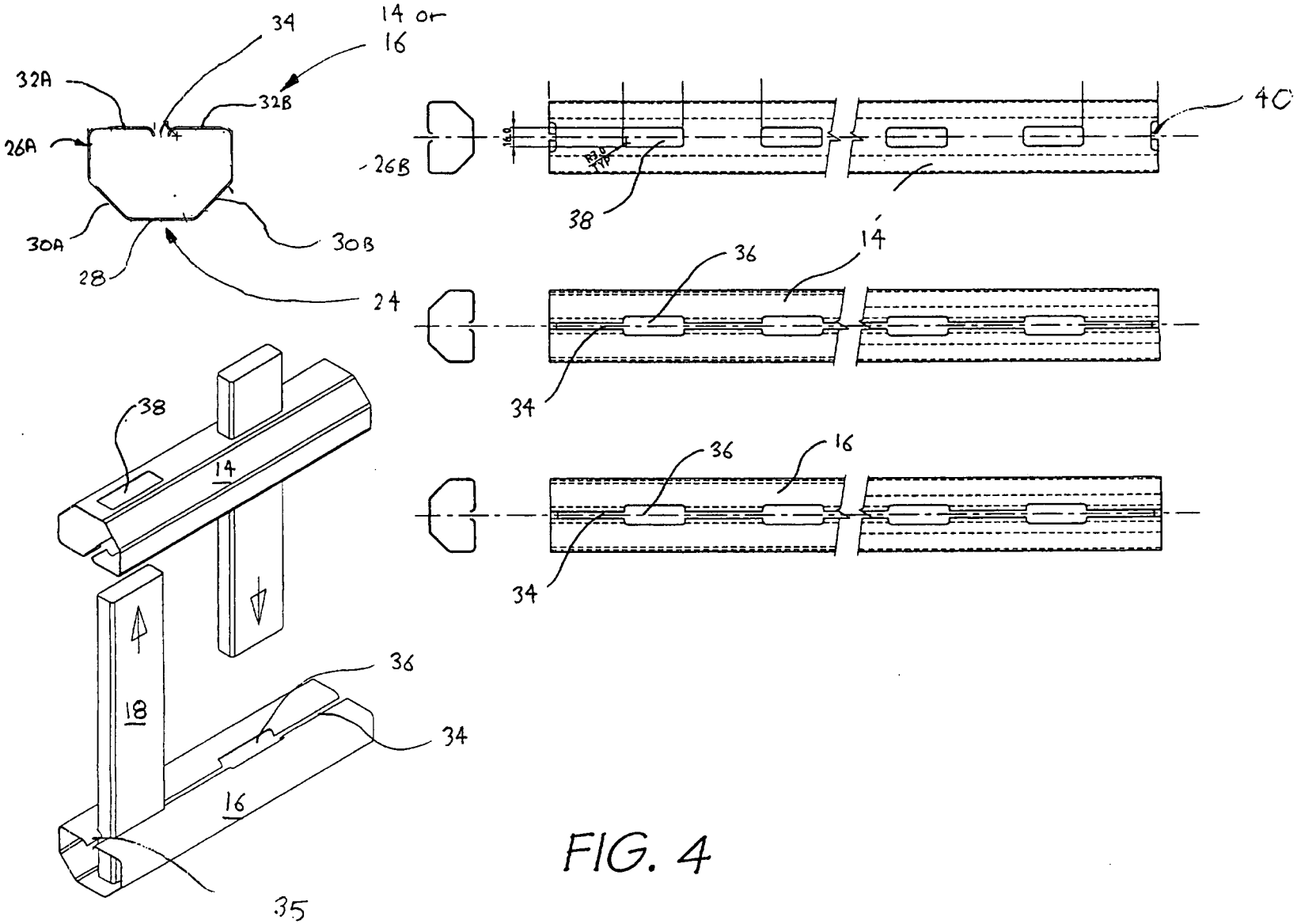

FIG. 4